PATENT
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Paul Bale, et al.	
Serial No.: 10/672,625	Conf. No.: 8081	Filing Date: September 26, 2003
Title of Application:	Central Network For Vehicle Dynamics And Ride Control Systems Having Distributed Electronic Control Units	
Group Art Unit: 3683	Examiner: Torres, Melanie	

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Appeal Brief Under 37 CFR §41.37

Dear Sir:

A Notice of Appeal from the final rejection of Claims 1-20, all pending claims of U.S. Patent Application No. 10/672,625, being filed herewith, Applicant accordingly files its Appeal Brief in connection with its appeal. A Claims Appendix is submitted herewith, as are Appendices related to evidence previously submitted and decisions related to the case.

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February 8, 2006

Tamara L. Millikan

(i) Real Party In Interest

The real party in interest is Haldex Brake Products Ltd., assignee of the patent application.

(ii) Related Appeals and Interferences

There are no related Appeals or Interferences.

(iii) Status Of Claims

Claims 1-20, all pending claims of the present application, stand rejected and are the subject of the instant Appeal. A copy of each of these claims is attached hereto in the Claims Appendix.

(iv) Status Of Amendments

There are no pending or unentered Amendments. Applicant filed an Amendment after mailing of the Final Office Action, which Amendment was entered by the Examiner.

(v) Summary Of Claimed Subject Matter

Claims 1 and 10 are the two independent claims.

Independent Claim 1

Claim 1 is directed to a brake system 410 for a heavy vehicle which includes a plurality of brake components 426, at least one vehicle performance sensor 210, and a central control unit 412. *See, e.g.,* Spec. ¶¶ 0036, 0037, 0043, 0053, 0054 and Figs. 4, 5. The central control unit 412 receives sensor signals 512 from the at least one vehicle performance sensor 210 and generates central control signals 510 for controlling the plurality of brake components 126 based on the received sensor signals 512. *See, e.g.,* Spec. ¶¶ 0038, 0042, 0054 and Figs. 4, 5. The brake system 410 also includes a distributed electronic control unit 414 which receives sensor signals 512 from the at least one vehicle performance sensor 210 and generates local control signals for controlling only some of the plurality of brake components 126 based on the received sensor signals 512. *See, e.g.,* Spec. ¶¶ 0056, 0057, 0058 and Figs. 4, 5. The system also includes a conflict resolution scheme 522 for resolving conflicts between the central control signals 510 and the local control signals. *See, e.g.,* Spec. ¶¶ 0040, 0041, 0058, 0059 and Figs. 4, 5.

Independent Claim 10

Claim 10 is directed to a brake system 410 for a heavy vehicle which includes first and second brake components 126, at least one vehicle performance sensor 210 and a central control unit 412. *See, e.g.,* Spec. ¶¶ 0036, 0037, 0043, 0053, 0054 and Figs. 4, 5. The central control unit 412 receives sensor signals 512 from the at least one vehicle performance sensor 210. *See, e.g.,* Spec. ¶¶ 0037, 0038, 0042, 0054 and

Figs. 4, 5. The brake system 410 also includes first and second control schemes 514 (which form part of each of control modules 116) used by the central control unit 412 for generating central control signals 510 for controlling the first and second brake components 126, respectively. *See, e.g.,* Spec. ¶¶ 0038, 0042, 0054 and Figs. 1, 2, 4. The brake system 410 also includes a distributed electronic control unit 414 which receives sensor signals 512 from the at least one vehicle performance sensor 210 and generates local control signals for controlling at least one of the first and second brake components 126. *See, e.g.,* Spec. ¶¶ 0040, 0041, 0058, 0059 and Figs. 4, 5.

(vi) Grounds Of Rejection To Be Reviewed On Appeal

Claims 1-20 stand rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement.

Claims 1-20 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,575,543 to Phoenix.

(vii) Argument

Rejection Under 35 U.S.C. §112, First Paragraph

Claims 1-20 stand rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. The Examiner specifically notes objection to

the terms "conflict resolution scheme" and "control schemes." Applicant respectfully traverses this rejection.

The enablement requirement of 35 U.S.C. 112 is concerned with whether the specification adequately describes how to make and use the invention. The analysis of whether a particular claim is supported by the disclosure in an application requires a determination of whether that disclosure, when filed, contained sufficient information regarding the subject matter of the claims as to enable one skilled in the pertinent art to make and use the claimed invention. (see MPEP 2164.01). The standard for determining whether the specification meets the enablement requirement has been stated as follows: Is the experimentation needed to practice the invention undue or unreasonable? *Mineral Separation v. Hyde*, 242 U.S. 261, 270 (1916); *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988); *United States v. Telectronics, Inc.*, 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988)("The test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation."). A patent need not teach, and preferably omits, what is well known in the art. *In re Buchner*, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991).

Control Schemes

Applicant respectfully submits that one reasonably skilled in the art could make and use the invention, including the features referenced by the Examiner, from the disclosure coupled with information known in the art without undue experimentation. Two of the terms the Examiner takes issue with are the first and second "control schemes." These "control schemes" are specifically defined in Paragraph [0038] of the Specification itself as comprising "at least one, and preferably a plurality of, rules concerning actuation of actuators 126 in response to various sensor signals 310." Numerous examples of known types of control schemes are also given, such as those for controlling service brakes, emergency brakes, trailer height adjustment, brake systems, suspension systems, anti-lock braking systems, shock-absorbing systems, etc.

Applicant respectfully submits that literally thousands of control schemes for controlling dozens of vehicle systems are extremely well known in the art, and that this is why Applicant has not included detailed descriptions of such control schemes in the specification of the current application. One example of a system which includes a control scheme is an anti-lock (or anti-skid) brake system. In a very simple example, a control scheme for such an anti-lock brake system may comprise the following rule: If wheel slip is sensed at any wheel and if braking is requested by the driver, generate pulsed control signals for the brake actuators. Of course, numerous more complex

control schemes for these types of systems are extremely well-known (see for example the three different embodiments of control schemes described in Figures 3, 15 and 16 and accompanying text of U.S. Patent No. 6,671,606 and Figure 6 and accompanying text of U.S. Patent No. 5,358,317).

Another example of a vehicle system in connection with which numerous control schemes are well known is a vehicle traction control system. Again, in a simple example, such a system may comprise the following rule: If wheel slip is sensed only at one wheel, and if braking is requested by the driver, generate constant control signals for the brake actuators of the non-slipping wheels. Of course, numerous more complex control schemes for these types of systems are extremely well-known (see for example Figure 5 and accompanying text of U.S. Patent No. 5,358,317). Control schemes for electronic braking systems in general are also extremely well-known, with an example thereof being described in Figure 4 and accompanying text of U.S. Patent No. 6,299,261. Countless other control schemes for the above-three mentioned vehicle systems are also extremely well known, as are countless control schemes for many other types of vehicle systems.

As stated above, it is recognized that a patent need not teach, and preferably omits, what is well known in the art. *In re Buchner*, 929 F.2d at 661, 18 USPQ2d at 1332. In the present application, details of the first and second control schemes, which

types of control schemes are extremely well known in the art, are omitted, as is preferable.

Conflict Resolution Scheme

With respect to the third claim element with which the Examiner apparently takes issue, the "conflict resolution scheme", this term is defined in Paragraph [0040] of the Specification itself as comprising:

> ...one or more rules concerning how to resolve conflicts between other rules. These conflict control rules may be absolute (e.g., "Safety scheme rules are always given priority over actuator control scheme rules."), or may depend upon sensed conditions of the vehicle (e.g., "When condition A is sensed, the rule contained in actuator control scheme X is given priority over the rule contained in actuator control scheme Y."). Of course, conflict control rules may be significantly more complicated in order to resolve potential conflicts between a number of actuator control schemes faced with a number of sensed conditions.

Thus, it would be clear to one reasonably skilled in the art that the "conflict resolution scheme" would be a set of rules concerning how to deal with conflicts between the rules comprising the first and second control schemes. Two specific examples of these rules are given in the specification -- they may be absolute, with one set of rules (i.e., one of the first control scheme or the second control scheme) always being given priority over the other, or they may be dependent upon a sensed condition. Thus, for example, in the situation where first control scheme is an anti-lock brake system control scheme and the second control scheme is a traction control system control scheme, the conflict resolution scheme may comprise a rule which states that:

The anti-lock brake system control scheme always takes precedence over the traction control system control scheme. Alternately, the conflict resolution scheme may comprise a rule which states that: The anti-lock brake system control scheme takes precedence over the traction control system control scheme when the vehicle is traveling less than 10 MPH, but the traction control system control scheme takes precedence over the anti-lock brake system control scheme at 10 MPH or higher.

Applicant believes that the "conflict resolution scheme" element is enabled by the specification in that (i) at least two specific examples thereof are given in the specification and (ii) one reasonably skilled in the art could easily arrive at other rules which would comprise the conflict resolution scheme without undue experimentation.

In response to the above arguments, the Examiner asserts in the outstanding Final Office Action, mailed October 6, 2005, that "The number of variables presented in how the operations may occur and to what system they are applied make the number of possibilities so numerous that one of ordinary skill in the art would not reasonably be able to make or use the invention or even ascertain what Applicant's invention is directed to and how it can be applied to the claimed brake system." Applicant respectfully disagrees. Applicant does acknowledge, as explained above, that numerous control schemes for controlling many different vehicle systems are extremely well known in the art. However, Applicant points out that the present invention is not

directed to any particular control scheme or schemes, and that the claimed invention is useable in connection with any of such control schemes. Applicant further respectfully submits that, once one skilled in the art decided upon which of the many well known control schemes were desired to be used, he/she could easily configure the claimed "conflict resolution scheme" to work with the chosen control schemes in view of the teachings of the Specification without any undue or unreasonable experimentation.

Rejection Under 35 U.S.C. §102(b)

Claims 1-20 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,575,543 to Phoenix (hereinafter "Phoenix"). Applicant respectfully traverses this rejection for the reasons stated below with respect to each claim.

The present invention is directed to an electrical control network laid over one or more vehicle dynamics control and/or ride control systems of a heavy vehicle, which control network controls actuation of components thereof. The invention offers many advantages including reduction of components, simplified design, unified communication for numerous different types of system components, simplified resolution of conflicts between competing control strategies, expandability to additional vehicle systems, and flexibility to upgrade for new, improved vehicle control schemes. Various features of the present invention are covered by the various claims, of which Claims 1 and 10 are independent and Claims 2-9 and 11-20 are dependent.

Independent Claim 1

Independent Claim 1 requires, among other limitations, (1) a central control unit generating central control signals for controlling a plurality of brake components, (2) a distributed electronic control unit generating local control signals for controlling only some of the plurality of brake components; and (3) a conflict resolution scheme for resolving conflicts between the central control signals and the local control signals. Applicant respectfully submits that at least the above-highlighted elements are not disclosed, taught or suggested by the cited prior art.

More specifically, Phoenix does not disclose, teach or suggest in any way a conflict resolution scheme for resolving conflicts between the central control signals and the local control signals. Phoenix discloses a single anti-lock brake system (ABS) control scheme which is implemented on a master controller 10 and one or more valve controllers 16. See, for example, Column 4, Lines 55-59, which states:

> In a preferred system in accordance with the present invention, the ABS control logic is shared between the local controller and the master controller, with most of the complex logic performed by the master controller, but the response-time critical logic performed locally.

(emphasis added). See also, for example, Column 8, Lines 16-23, which states:

> Thus, in summary of the aforegoing, a "master electronic control unit (ECU)" is one which contains part of the ABS algorithm which is concerned with system-wide data, and supplies brake pressure demands to a valve-associated ECU; and a "valve-associated ECU/local electronic control unit" is one which contains

> another part of the ABS algorithm which is concerned only with local data, and which can override pressure commands from the master ECU.

(emphasis added).

Thus, while the signals generated by the master controller 10 may be considered to be analogous to the claimed "central control signals" and the signals generated by the valve controllers 16 may be considered to be analogous to the claimed "local control signals", both types of signals are generated in accordance with a single algorithm (i.e., "control scheme"). Since the signals are generated in accordance with one integrated control scheme, there would never be any instances where there would be conflicts between the "central control signals" and the "local control signals". This is why Phoenix does not disclose, teach or suggest in any way a conflict resolution scheme for resolving conflicts between the central control signals and the local control signals. This is also why it would not be obvious to modify Phoenix to include such a conflict resolution scheme for resolving conflicts between the central control signals and the local control signals.

In the Advisory Action mailed January 9, 2006, the Examiner points to Column 4, Lines 61-65 of Phoenix as teaching the claimed "conflict resolution scheme." However, Applicant points out that Claim 1 requires that the "conflict resolution scheme" resolve conflicts between the central control signals and the local control signals. In Phoenix,

the single control scheme disclosed therein (which is implemented across the central control unit and the distributed control unit) does not generate two sets of control signals, which may conflict in any way. As such no conflict resolution scheme is necessary. Instead, what the Phoenix system does is to, if it detects a skid, allow the distributed control unit to assume control over that brake. The central control unit does not generate one control signal while the distributed control unit generates another conflicting control signal. Phoenix describes this process in detail in the "Description of Preferred Embodiments" section thereof. *See, e.g.,* Column 6, Line 20 - Column 7, Line 19.

In view of the above, Applicant respectfully submits that Claim 1, as well as claims 2-9 that depend therefrom, are patentable over the cited prior art.

Dependent Claims 2 and 3

In addition to the limitations of Claim 1, Claims 2 and 3 further require, among other limitations, (1) a first control scheme used by the central control unit for generating first central control signals, (2) a second control scheme used by the central control unit for generating second central control signals, and (3) a central control unit conflict resolution scheme used by the central control unit for resolving conflicts between the first and second central control signals. Applicant respectfully submits that Phoenix does not disclose, teach or suggest the above-highlighted limitations.

More specifically, Phoenix does not disclose, teach or suggest in any way a central control unit that uses two separate control schemes (i.e., a first control scheme and a second control scheme), each of which is used by the central control unit to generate one of two separate central control signals (i.e., first central control signals and second central control signals). Rather, Phoenix teaches only a single control scheme (i.e., an algorithm) used to generate all central control signals. As such, Phoenix certainly does not disclose, teach or suggest in any way a central control unit conflict resolution scheme used by the central control unit for resolving conflicts between the first and second central control signals. Such a central control unit conflict resolution scheme would be completely unnecessary in the Phoenix system, since only a single control scheme is employed.

Dependent Claims 4 and 5

In addition to the limitations of Claim 1, Claims 4 and 5 further require, among other limitations, (1) a first control scheme used by the distributed electronic control unit for generating first local control signals, (2) a second control scheme used by the distributed electronic control unit for generating second local control signals, and (3) a distributed electronic control unit conflict resolution scheme used by the distributed electronic control unit for resolving conflicts between the first and second local control

signals. Applicant respectfully submits that Phoenix does not disclose, teach or suggest the above-highlighted limitations.

More specifically, Phoenix does not disclose, teach or suggest in any way a distributed electronic control unit that uses two separate control schemes (i.e., a first control scheme and a second control scheme), each of which is used by the distributed electronic control unit to generate one of two separate local control signals (i.e., first local control signals and second local control signals). Rather, Phoenix teaches only a single control scheme (i.e., an algorithm) used to generate all local control signals. As such, Phoenix certainly does not disclose, teach or suggest in any way a distributed electronic control unit conflict resolution scheme used by the distributed electronic control unit for resolving conflicts between the first and second local control signals. Such a distributed electronic control unit conflict resolution scheme would be completely unnecessary in the Phoenix system, since only a single control scheme is employed.

Dependent Claim 6

In addition to the limitations of Claim 1, Claim 6 further requires, among other limitations, a manual input for overriding the central control signals and the local control signals.

While Applicant concedes that the Phoenix system does include a pedal operated transducer 12 which produces driver braking demand signals D, and that the pedal operated transducer 12 may be considered a manual input, Applicant respectfully submits that Phoenix does not disclose, teach or suggest that the pedal operated transducer 12 can be used to override the central control signals and the local control signals. Rather, the braking demand signals D produced by the pedal operated transducer 12 are simply used as one of the parameters to generate (not override) control signals.

Dependent Claim 7

Claim 7 depends from Claim 1, and therefore, Applicant respectfully submits that Claim 7 is patentable over the cited prior art for the reasons discussed above with respect to Claim 1.

Dependent Claim 8

In addition to the limitations of Claim 1, Claim 8 further requires, among other limitations, a source of electrical energy for use in actuating the brake component.

The brake actuators of the system disclosed in Phoenix are actuated pneumatically (i.e., by pressurized air), and Applicant respectfully submits that Phoenix does not disclose, teach or suggest in any way a source of electrical energy for use in

actuating the brake component. While Applicant concedes that the Phoenix system would include a source of electrical energy powering the electronic control system, Applicant respectfully submits that there is no teaching in Phoenix that this source of electrical energy can also be used for actuating the brake component.

Dependent Claim 9

In addition to the limitations of Claim 1, Claim 9 further requires, among other limitations, that the conflict resolution scheme is configured in a form selected from the group consisting of hardware, software, firmware, a pluggable module and combinations of these. As discussed above in connection with Claim 1, Applicant respectfully submits that Phoenix does not disclose, teach or suggest a conflict resolution scheme. As such, Phoenix certainly does not disclose a conflict resolution scheme which takes the form of hardware, software, firmware, and/or a pluggable module.

Independent Claim 10

Independent Claim 10 requires, among other limitations: (1) a central control unit receiving sensor signals from at least one vehicle performance sensor; (2) a first control scheme used by the central control unit for generating central control signals for controlling a first brake component; and (3) a second control scheme used by the central control unit for generating central control signals for controlling a second brake

component. Applicant respectfully submits that at least the above-highlighted elements are not disclosed, taught or suggested by the cited prior art.

More specifically, Phoenix does not disclose, teach or suggest in any way a central control unit that uses two separate control schemes (i.e., a first control scheme and a second control scheme), each of which is used to control one of two separate brake components (i.e., a first brake component and a second brake component). Rather, Phoenix teaches only a single control scheme (i.e., an algorithm) used to generate control signals for controlling all of the brake components of the system.

In view of the above, Applicant respectfully submits that Claim 10, as well as claims 11-20 that depend therefrom, are patentable over the cited prior art.

Dependent Claims 11 - 13

In addition to the limitations of Claim 10, Claims 11-13 further require, among other limitations, a conflict resolution scheme for resolving conflicts between the central control signals and the local control signals. Applicant respectfully submits that Phoenix does not disclose, teach or suggest in any way such a conflict resolution scheme.

More specifically, Phoenix does not disclose, teach or suggest in any way a conflict resolution scheme for resolving conflicts between the central control signals and

the local control signals. Phoenix discloses a single anti-lock brake system (ABS) control scheme which is implemented on a master controller 10 and one or more valve controllers 16. See, for example, Column 4, Lines 55-59, which states:

> In a preferred system in accordance with the present invention, the ABS control logic is shared between the local controller and the master controller, with most of the complex logic performed by the master controller, but the response-time critical logic performed locally.

(emphasis added). See also, for example, Column 8, Lines 16-23, which states:

> Thus, in summary of the aforegoing, a "master electronic control unit (ECU)" is one which contains part of the ABS algorithm which is concerned with system-wide data, and supplies brake pressure demands to a valve-associated ECU; and a "valve-associated ECU/local electronic control unit" is one which contains another part of the ABS algorithm which is concerned only with local data, and which can override pressure commands from the master ECU.

(emphasis added).

Thus, while the signals generated by the master controller 10 may be considered to be analogous to the claimed "central control signals" and the signals generated by the valve controllers 16 may be considered to be analogous to the claimed "local control signals", both types of signals are generated in accordance with a single algorithm (i.e., "control scheme"). Since the signals are generated in accordance with one integrated control scheme, there would never be any instances where there would be conflicts between the "central control signals" and the "local control signals". This is why Phoenix does not disclose, teach or suggest in any way a conflict resolution scheme for resolving conflicts between the central control signals and the local control signals.

This is also why it would not be obvious to modify Phoenix to include such a conflict resolution scheme for resolving conflicts between the central control signals and the local control signals.

In the Advisory Action mailed January 9, 2006, the Examiner points to Column 4, Lines 61-65 of Phoenix as teaching the claimed "conflict resolution scheme." However, Applicant points out that Claim 1 requires that the "conflict resolution scheme" resolve conflicts between the central control signals and the local control signals. In Phoenix, the single control scheme disclosed therein (which is implemented across the central control unit and the distributed control unit) does not generate two sets of control signals, which may conflict in any way. As such no conflict resolution scheme is necessary. Instead, what the Phoenix system does is to, if it detects a skid, allow the distributed control unit to assume control over that brake. The central control unit does not generate one control signal while the distributed control unit generates another conflicting control signal. Phoenix describes this process in detail in the "Description of Preferred Embodiments" section thereof. *See, e.g.,* Column 6, Line 20 - Column 7, Line 19.

Dependent Claim 14

Claim 14 depends from Claim 10, and therefore, Applicant respectfully submits that Claim 14 is patentable over the cited prior art for the reasons discussed above with respect to Claim 10.

Dependent Claims 15 and 16

In addition to the limitations of Claim 10, Claims 15 and 16 further require, among other limitations, (1) a first control scheme used by the distributed electronic control unit for generating first local control signals, (2) a second control scheme used by the distributed electronic control unit for generating second local control signals, and (3) a distributed electronic control unit conflict resolution scheme used by the distributed electronic control unit for resolving conflicts between the first and second local control signals. Applicant respectfully submits that Phoenix does not disclose, teach or suggest the above-highlighted limitations.

More specifically, Phoenix does not disclose, teach or suggest in any way a distributed electronic control unit that uses two separate control schemes (i.e., a first control scheme and a second control scheme), each of which is used by the distributed electronic control unit to generate one of two separate local control signals (i.e., first local control signals and second local control signals). Rather, Phoenix teaches only a single control scheme (i.e., an algorithm) used to generate all local control signals. As

such, Phoenix certainly does not disclose, teach or suggest in any way a distributed electronic control unit conflict resolution scheme used by the distributed electronic control unit for resolving conflicts between the first and second local control signals. Such a distributed electronic control unit conflict resolution scheme would be completely unnecessary in the Phoenix system, since only a single control scheme is employed.

Dependent Claim 17

In addition to the limitations of Claim 10, Claim 17 further requires, among other limitations, a manual input for overriding the central control signals and the local control signals.

While Applicant concedes that the Phoenix system does include a pedal operated transducer 12 which produces driver braking demand signals D, and that the pedal operated transducer 12 may be considered a manual input, Applicant respectfully submits that Phoenix does not disclose, teach or suggest that the pedal operated transducer 12 can be used to override the central control signals and the local control signals. Rather, the braking demand signals D produced by the pedal operated transducer 12 are simply used as one of the parameters to generate (not override) control signals.

Dependent Claim 18

Claim 18 depends from Claim 10, and therefore, Applicant respectfully submits that Claim 18 is patentable over the cited prior art for the reasons discussed above with respect to Claim 10.

Dependent Claim 19

In addition to the limitations of Claim 10, Claim 19 further requires, among other limitations, a source of electrical energy for use in actuating the brake component.

The brake actuators of the system disclosed in Phoenix are actuated pneumatically (i.e., by pressurized air), and Applicant respectfully submits that Phoenix does not disclose, teach or suggest in any way a source of electrical energy for use in actuating the brake component. While Applicant concedes that the Phoenix system would include a source of electrical energy powering the electronic control system, Applicant respectfully submits that there is no teaching in Phoenix that this source of electrical energy can also be used for actuating the brake component.

Dependent Claim 20

Claim 20 depends from Claim 10, and therefore, Applicant respectfully submits that Claim 20 is patentable over the cited prior art for the reasons discussed above with respect to Claim 10.

Conclusion

For the foregoing reasons, Applicant respectfully submits that the claimed invention embodied in each of claims 1-20 is enabled by the specification and is patentable over the cited prior art. As such, Applicant respectfully requests that the rejections of each of claims 1-20 be reversed and the Examiner be directed to issue a Notice of Allowance allowing each of claims 1-20.

Respectfully submitted,

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Claims Appendix
to Appeal Brief Under 37 CFR §41.37
Serial No. 10/672,625

1. (original) A brake system for a heavy vehicle, comprising:

a plurality of brake components;

at least one vehicle performance sensor;

a central control unit receiving sensor signals from said at least one vehicle performance sensor and generating central control signals for controlling said plurality of brake components based on the received sensor signals;

a distributed electronic control unit receiving sensor signals from said at least one vehicle performance sensor and generating local control signals for controlling only some of said plurality of brake components based on the received sensor signals; and

a conflict resolution scheme for resolving conflicts between the central control signals and the local control signals.

2. (original) The brake system of Claim 1 wherein said central control unit comprises:

a first control scheme used by said central control unit for generating first central control signals;

a second control scheme used by said central control unit for generating second central control signals; and

a central control unit conflict resolution scheme used by said central control unit for resolving conflicts between the first and second central control signals.

3. (original) The brake system of claim 2 wherein said central control unit conflict resolution scheme comprises part of one or both of said first and second control schemes.

4. (original) The brake system of Claim 1 wherein said distributed electronic control unit comprises:

a first control scheme used by said distributed electronic control unit for generating first local control signals;

a second control scheme used by said distributed electronic control unit for generating second local control signals; and

a distributed electronic control unit conflict resolution scheme used by said distributed electronic control unit for resolving conflicts between the first and second local control signals.

5. (original) The brake system of claim 4 wherein said distributed electronic control unit conflict resolution scheme comprises part of one or both of said first and second control schemes.

6. (original) The brake system of claim 1 further comprising a manual input for overriding the central control signals and the local control signals.

7. (original) The brake system of claim 1 further comprising a source of pressurized air for use in actuating the brake component.

8. (original) The brake system of claim 1 further comprising a source of electrical energy for use in actuating the brake component.

9. (original) The brake system of claim 1 wherein said conflict resolution scheme is configured in a form selected from the group consisting of hardware, software, firmware, a pluggable module and combinations of these.

10. (previously presented) A brake system for a heavy vehicle, comprising:

a first brake component;

a second brake component;

at least one vehicle performance sensor;

a central control unit receiving sensor signals from said at least one vehicle performance sensor;

a first control scheme used by said central control unit for generating central control signals for controlling said first brake component;

a second control scheme used by said central control unit for generating central control signals for controlling said second brake component; and

a distributed electronic control unit receiving sensor signals from said at least one vehicle performance sensor and generating local control signals for controlling at least one of said first and second brake components.

11. (original) The brake system of Claim 10 further comprising a conflict resolution scheme for resolving conflicts between the central control signals and the local control signals.

12. (original) The brake system of claim 11 wherein said conflict resolution scheme comprises part of one or both of said first and second control schemes.

13. (original) The brake system of claim 11 wherein said conflict resolution scheme is configured in a form selected from the group consisting of hardware, software, firmware, a pluggable module and combinations of these.

14. (original) The brake system of Claim 10 wherein said distributed electronic control unit generates local control signals for controlling only one of said first and second brake components.

15. (original) The brake system of Claim 10 wherein said distributed electronic control unit comprises:

a first control scheme used by said distributed electronic control unit for generating first local control signals;

a second control scheme used by said distributed electronic control unit for generating second local control signals; and

a distributed electronic control unit conflict resolution scheme used by said distributed electronic control unit for resolving conflicts between the first and second local control signals.

16. (original) The brake system of claim 15 wherein said distributed electronic control unit conflict resolution scheme comprises part of one or both of said first and second control schemes.

17. (original) The brake system of claim 10 further comprising a manual input for overriding the central control signals and the local control signals.

18. (original) The brake system of claim 10 further comprising a source of pressurized air for use in actuating the brake component.

19. (original) The brake system of claim 10 further comprising a source of electrical energy for use in actuating the brake component.

20. (original) The brake system of claim 10 wherein at least one of said first and second control schemes is configured in a form selected from the group consisting of hardware, software, firmware, a pluggable module and combinations of these.

Evidence Appendix
to Appeal Brief Under 37 CFR §41.37
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No evidence of any kind, including evidence submitted under 37 CFR 1.130, 1.131 or 1.132, has been entered by the Examiner and relied upon by Appellant in the appeal.

Related Proceedings Appendix
to Appeal Brief Under 37 CFR §41.37
Serial No. 10/672,625

There are no related Appeals or Interferences. As such, there are no decisions rendered by a court or the Board in any such Appeals or Interferences.